

WHAT IS CLAIMED IS:

1. A method of manufacturing an optical head comprising a light source, an objective lens, a reflecting mirror that reflects beams of light from the light source to allow them to enter the objective lens, and an optical bench for maintaining the light source and the reflecting mirror,  
5 wherein the reflecting mirror and the optical bench are bonded and fixed while being placed on an external jig provided with a mirror holding portion for maintaining the reflecting mirror.
- 10 2. The method of manufacturing an optical head according to claim 1, wherein the reflecting mirror is placed on the mirror holding portion at a predetermined angle.
- 15 3. The method of manufacturing an optical head according to claim 2, wherein the reflecting mirror is placed so that a reflecting plane of the reflecting mirror contacts with an angle reference plane of the mirror holding portion.
- 20 4. The method of manufacturing an optical head according to claim 1, wherein a position of the reflecting mirror in a direction parallel to a reflecting plane of the reflecting mirror is specified by bringing the reflecting mirror into contact with the mirror holding portion.
- 25 5. The method of manufacturing an optical head according to claim 1, wherein the reflecting mirror is not brought into direct contact with the optical bench.
- 30 6. The method of manufacturing an optical head according to claim 1, wherein the reflecting mirror is bonded and fixed at vicinities of approximate centers of its two opposed side faces approximately orthogonal to a reflecting plane of the reflecting mirror.
- 35 7. The method of manufacturing an optical head according to claim 1, wherein the reflecting mirror has a flat-plate shape.
8. The method of manufacturing an optical head according to claim 1,

wherein the reflecting mirror and the optical bench are bonded and fixed using a UV adhesive.

9. An optical head, comprising:

5            a light source;  
              an objective lens;  
              a reflecting mirror that reflects beams of light from the light source to allow them to enter the objective lens; and  
              an optical bench for maintaining the light source and the reflecting  
10      mirror,

              wherein the reflecting mirror is bonded and fixed to the optical bench, and

15      in a portion where the reflecting mirror is mounted in the optical bench, no reference plane for specifying a mounting angle of the reflecting mirror through contact with the reflecting mirror is formed.

10. The optical head according to claim 9, wherein the reflecting mirror is not in direct contact with the optical bench.

20 11. The optical head according to claim 9, wherein the reflecting mirror is bonded and fixed at vicinities of approximate centers of its two opposed side faces approximately orthogonal to a reflecting plane of the reflecting mirror.

25 12. The optical head according to claim 9, wherein the reflecting mirror has a flat-plate shape.

13. The optical head according to claim 9, wherein the reflecting mirror is bonded and fixed using a UV adhesive.

30 14. An optical head, comprising:

              a light source;  
              an objective lens for forming a light spot on an information recording medium;  
              a member for reflecting beams of light, which reflects beams of light from the light source to allow them to enter the objective lens and is positioned between the objective lens and the light source; and

a resin optical bench for maintaining the light source,  
wherein the member for reflecting beams of light is a reflecting  
mirror obtained by forming a reflection film on a resin or glass base, and  
the member for reflecting beams of light and the resin optical bench  
5 are integrally molded.

15. An optical head, comprising:  
a light source;  
an objective lens for forming a light spot on an information  
10 recording medium;  
a member for reflecting beams of light, which reflects beams of light  
from the light source to allow them to enter the objective lens and is  
positioned between the objective lens and the light source; and  
a resin optical bench for maintaining the light source,  
15 wherein the member for reflecting beams of light is obtained by  
forming a reflection film on a surface of the resin optical bench.

16. An optical head, comprising:  
a light source;  
20 an objective lens for forming a light spot on an information  
recording medium;  
an objective lens actuator for actuating the objective lens in a  
normal direction and in a radial direction of the information recording  
medium;  
25 a member for reflecting beams of light, which reflects beams of light  
from the light source to allow them to enter the objective lens and is  
positioned between the objective lens and the light source; and  
a resin optical bench for maintaining the light source,  
wherein the objective lens actuator comprises a lens holder for  
30 maintaining the objective lens and a suspension for supporting the lens  
holder movably in the normal direction and in the radial direction of the  
information recording medium, and  
the lens holder, the suspension, and the resin optical bench are  
integradly molded.

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17. An optical head, comprising:  
a light source;

- an objective lens for forming a light spot on an information recording medium;
- an objective lens actuator for actuating the objective lens in a normal direction and in a radial direction of the information recording medium;
- 5 a member for reflecting beams of light, which reflects beams of light from the light source to allow them to enter the objective lens and is positioned between the objective lens and the light source; and
- a resin optical bench for maintaining the light source,
- 10 wherein the objective lens actuator comprises a lens holder for maintaining the objective lens and a suspension for supporting the lens holder movably in the normal direction and in the radial direction of the information recording medium,
- the member for reflecting beams of light is a reflecting mirror obtained by forming a reflection film on a resin or glass base, and
- 15 the lens holder, the suspension, the member for reflecting beams of light, and the resin optical bench are integrally molded.
18. An optical head, comprising:
- 20 a light source;
- an objective lens for forming a light spot on an information recording medium;
- an objective lens actuator for actuating the objective lens in a normal direction and in a radial direction of the information recording medium;
- 25 a member for reflecting beams of light, which reflects beams of light from the light source to allow them to enter the objective lens and is positioned between the objective lens and the light source; and
- a resin optical bench for maintaining the light source,
- 30 wherein the objective lens actuator comprises a lens holder for maintaining the objective lens and a suspension for supporting the lens holder movably in the normal direction and in the radial direction of the information recording medium,
- the lens holder, the suspension, and the resin optical bench are integrally molded, and
- 35 the member for reflecting beams of light is obtained by forming a reflection film on a surface of the resin optical bench.

19. The optical head according to claim 14 or 17, wherein the member for reflecting beams of light is maintained in the resin optical bench by its back surface and in the vicinities of its two end faces in a direction parallel to a surface of the information recording medium but not in the vicinities of its two end faces in the normal direction of the information recording medium.
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20. The optical head according to claim 14 or 17, wherein approximate four corners of a reflecting plane of the member for reflecting beams of light are covered with a substantially black resin and a quantity of reflection at the approximate four corners is reduced.
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21. The optical head according to claim 14 or 17, wherein approximate four corners of a reflecting plane of the member for reflecting beams of light are covered with a resin, and a satin treatment is carried out on a surface of the resin covering the approximate four corners.
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22. The optical head according to any of claims 14 to 18, wherein the reflection film is a metal film or a dielectric film formed using aluminum or chromium as a material.
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23. The optical head according to any of claims 14 to 18, wherein an AR coating having an antioxidative function and an antireflective function is applied on the reflection film.
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24. The optical head according to any of claims 14 to 18, wherein the resin optical bench is formed of acrylic, PPS, polycarbonate, liquid crystal polymer, or polyolefin resin.
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25. The optical head according to any of claims 14 to 18, wherein a photoabsorption film is applied to approximate four corners of a reflecting plane of the member for reflecting beams of light, and a quantity of reflection at the approximate four corners is reduced.
26. A method of manufacturing an optical head comprising a light source, an objective lens for forming a light spot on an information recording medium, a member for reflecting beams of light, which reflects beams of light emitted from the light source to allow them to enter the objective lens and is
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positioned between the objective lens and the light source, and a resin optical bench for maintaining the light source,

wherein the member for reflecting beams of light is a reflecting mirror obtained by forming a reflection film on a resin or glass base, and

5       the member for reflecting beams of light and the resin optical bench are integrally molded by resin molding with the member for reflecting beams of light being placed on a mold for molding provided with a fixing portion for maintaining the member for reflecting beams of light.

- 10      27.     The method of manufacturing an optical head according to claim 26, wherein further a suspension for supporting a lens holder for maintaining the objective lens movably in a normal direction and in a radial direction of the information recording medium is placed in the mold for molding and in this state the resin molding is carried out, thus integrally molding the  
15     member for reflecting beams of light, the suspension, the lens holder, and the resin optical bench.